

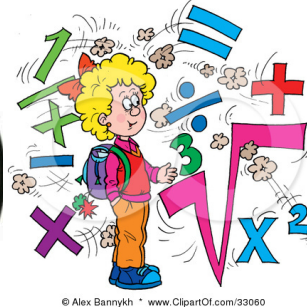
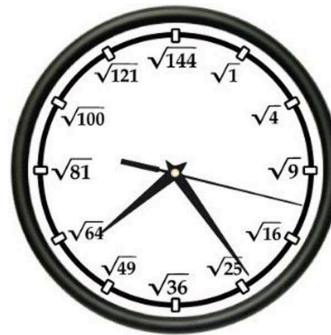
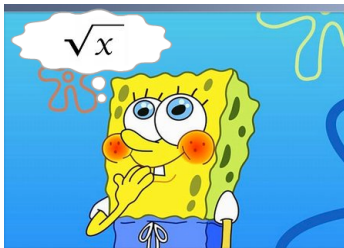
Chapter 6 Square Roots & the Pythagorean Theorem

6.5 Using the Pythagorean Theorem

Unit Question: How do we use signs and symbols to help us?

Learner Profile: Inquirer

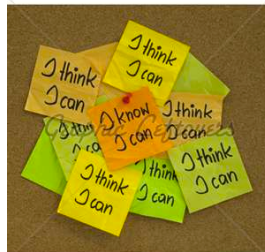
Area of Interaction: Human Ingenuity



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I Can Statement:

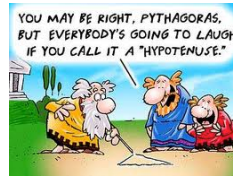
I can understand use the Pythagorean Theorem.



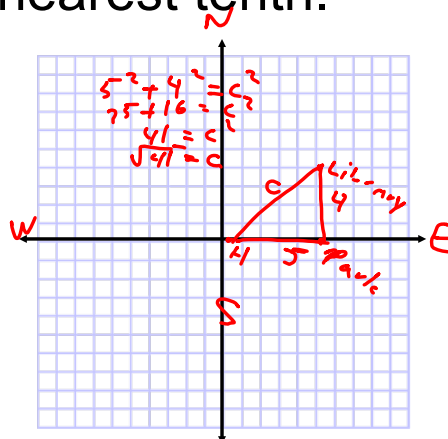
Real-Life Applications of the Pythagorean Theorem

Pythagorean Theorem:

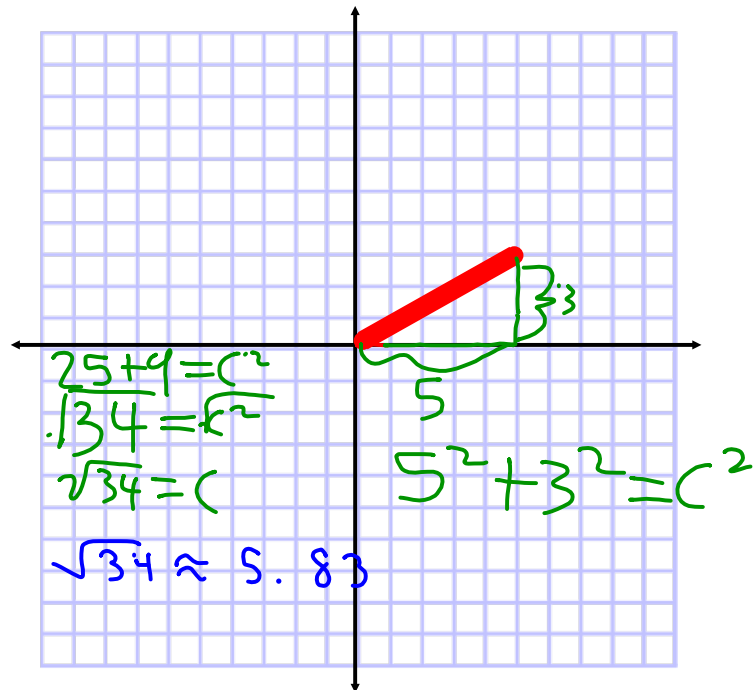
$$a^2 + b^2 = c^2$$

To solve for c : add.To solve for a or b :
subtract.

A park is 5 miles east of your home. The library is 4 miles north of the park. Use a coordinate grid to show how far your home is from the library? Round your answer to the nearest tenth.

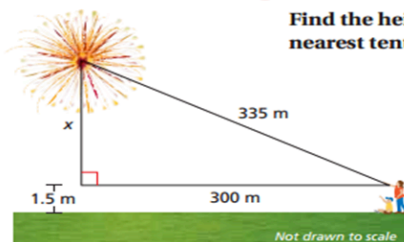


Find the distance of the segment using the Pythagorean Theorem.



EXAMPLE 2 Real-Life Application

Find the height of the firework. Round your answer to the nearest tenth.



$$a^2 + b^2 = c^2$$

$$x^2 + 300^2 = 335^2$$

$$x^2 + 90,000 = 112,225$$

$$x^2 = 22,225$$

$$\sqrt{x^2} = \sqrt{22,225}$$

$$x \approx 149.1$$

Write the Pythagorean Theorem.

Substitute.

Evaluate powers.

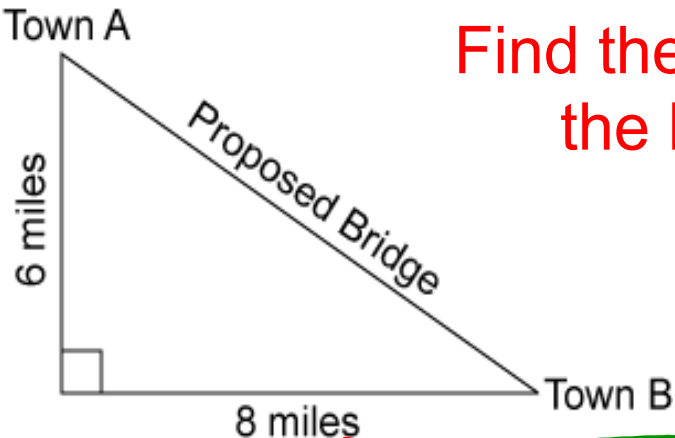
Subtract 90,000 from each side.

Take positive square root of each side.

Use a calculator.

❖ The height of the firework is about $149.1 + 1.5 = 150.6$ meters.

Find the length of the bridge.



$6^2 + 8^2 = c^2$
 $36 + 64 = c^2$
 $c = \sqrt{100}$
 $c = 10$

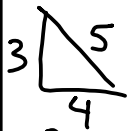
Think, Pair, Share

How can you determine if a triangle is right, given the 3 sides?

Pythagorean Triple: a set of three positive integers a , b , and c where $a^2 + b^2 = c^2$.

Common Pythagorean Triples

3, 4, 5	5, 12, 13	8, 15, 17	7, 24, 25
6, 8, 10	10, 24, 26	16, 30, 34	14, 48, 50
9, 12, 15	15, 36, 39	24, 45, 51	21, 72, 75
$3x, 4x, 5x$	$5x, 12x, 13x$	$8x, 15x, 17x$	$7x, 24x, 25x$



$$3^2 + 4^2 = 5^2$$

$$9 + 16 = 25$$

You can recognize a
 → triangle, if the
 sides are proportional
 to a TRIPLE !!

Are the following triangles right?

How do you know which side is c ?

The longest one
 The sides of the triangle are as follows:

- 9 cm, 40 cm, 41 cm **Right !!**
- 12 ft, 24 ft, 18 ft **NO**
- 1.5 yd, 3.5 yd, 2.5 yd **NO**
- 28 in, 21 in, 20 in **not**

I Can Statement:

I can understand and use the
Pythagorean Theorem.



Assignment

Workbook Activity 6.5
p133-135